



AF ZMU

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: James D. Pylant et al.

Group Art Unit: 3721

Serial No.: 10/621,031

Examiner: Louis K. Huynh

Filing Date: July 14, 2003

Attorney Docket: PI-018

Title: **WAFER SHIPPER WITH ORIENTATION CONTROL**

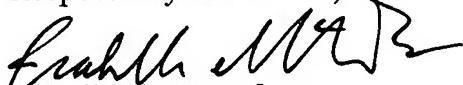
**TRANSMITTAL**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Attached is a Reply Brief for the above-identified application. The Reply Brief is being submitted within the deadline set by the Examiner's Answer (dated January 20, 2006). Accordingly, no fee is due in conjunction with the enclosed Reply Brief. In the event a fee is due, the Commissioner is authorized to charge any fee that may be due to Deposit Account 50-2991.

Respectfully submitted,

  
Isabelle R. McAndrews  
Reg. No. 34,998

**Certificate of Mailing**

I hereby certify that this correspondence and the documents referred to as attached hereto are being deposited with the U.S. Postal Service with sufficient postage in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

  
Isabelle R. McAndrews

01-30-06  
Date



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES**

Inventor: James D. Pylant et al.

Group Art Unit: 3721

Serial No.: 10/621,031

Examiner: Louis K. Huynh

Filing Date: July 14, 2003

Attorney Docket: PI-018

**Title: WAFER SHIPPER WITH ORIENTATION CONTROL**

---

Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313

**REPLY BRIEF**

Sir:

In response to the Examiner's Answer dated January 20, 2006, please consider the following remarks.

## REMARKS

Appellants respectfully submit that the Examiner's contentions with respect to Claims 15 – 22 are erroneous for the reasons set forth below.

I. Kawada in view of Takeuchi Fail to Teach a Method for Ascertaining the Orientation of A Wafer within a Container as Recited in Claims 15 -18

Claim 15 recites "each wafer assembly has a known orientation that is visible when the chamber is uncovered". Claims 16 - 18 depend on claim 15. Claim 21 recites "each wafer element has a known orientation that is visible when the chamber is uncovered". Kawada, together with Takeuchi, fail to teach or suggest a wafer assembly or wafer element that has a known orientation when the storage chamber is uncovered.

The wafer element (hereinafter wafer) of Takeuchi and the storage container of Kawada are shown below in Figures 1 and 2 respectively. The Examiner refers to straight edge 22 of Figure 1 as the alignment artifact (Examiner's Answer at p. 3, last paragraph). In Figure 1, Takeuchi's alignment artifacts are identified as 22a – 22d. Takeuchi's wafer (11) is substantially

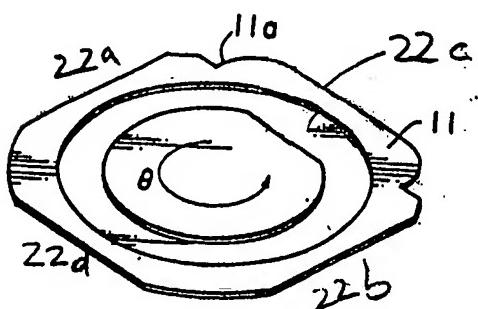


Figure 1

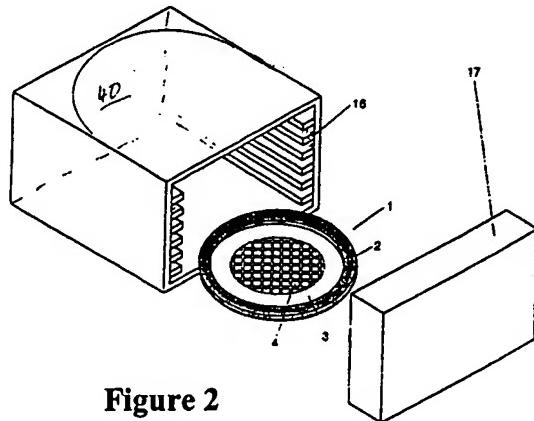


Figure 2

square-shaped and hence can be inserted into Kawada's container in four different ways. Kawada's container (Fig. 2 above) has a rear wall 40, and slots

16. The four different positions that Takeuchi's wafer can occupy in the container of Figure 2 are set forth in Table 1.

**Table 1**

Rotational Position #	Position of Wafer in Kawada's Container	Orientation Marks (11a) Visible
1	22a and 22b contact slots (16), 22c contacts rear wall (40)	No
2	22a and 22b contact slots (16) 22d contacts rear wall (40)	Yes
3	22c and 22d contact slots (16) 22b contacts rear wall (40)	No
4	22c and 22d contact slots (16) 22a contacts rear wall (40)	No

In other words, Takeuchi's wafer has four discrete rotational positions with respect to Kawada's storage container. Only in one of its rotational positions will Takeuchi's wafer have a known orientation. Consequently, three out of four times Takeuchi's wafer 11 will be inserted into Kawada's container with an unknown orientation. Therefore, a skilled artisan looking at wafer edges 22 is unable to discern anything about the orientation of wafer 11.

Given the lack of information gleaned from alignment artifacts 22, Takeuchi's wafers must be removed from their storage containers and prealigned in a known orientation prior to processing. As Takeuchi states,

[A]ll the ring frames 11 to which the wafers 1 have been fixed are taken out of the ring frame cassette and these rings frames are stored in the elevator section. In a **prealignment section** 22, the rings frames 11 are taken one by one out of the elevator section 21 and are located in the direction  $\theta$  (see Fig. 2A). (Col. 5, Lines 4 -10, emphasis added.)

Consequently, the orientation of Takeuchi's wafers are not known at all times within their storage containers, and thus would have an unknown orientation most of the time when stored in Kawada's containers. Nothing in the Examiner's

Answer rebuts Takeuchi's requirement of pre-aligning his wafers 11 after they have been stored in a wafer container. Therefore, claims 15-18 are novel and non-obvious over Kawada in view of Takeuchi. Accordingly, the Board is requested to overturn the rejection of Claims 15 -18 over Kawada in view of Takeuchi.

II. Claims 19 -22 are Non-obvious over Kawada in view of Takeuchi because the Combined Prior Art Fails to Suggest a Container that Conforms to the Outer Dimension of the Wafer Element of Takeuchi

Claim 19 recites a method of for storing a plurality of wafers in a container comprising ... “providing a container that conforms to the outer dimension of the wafer elements”. Claims 20 -22 are dependent on Claim 19.

Neither Kawada nor Takeuchi disclose “providing a container that conforms to the outer dimension of the wafer elements”. In particular, Kawada illustrates a circular wafer element being placed into a box-shaped container (see Fig. 6 of U.S. 6,119,865). Takeuchi discloses a wafer element with curved corners and straight sides, but is silent on what type of shaped his wafer container should have. Since neither Kawada nor Takeuchi suggest “providing a container that conforms to the outer dimension of the wafer elements”, the Examiner must be relying on impermissible hindsight to reject Claims 19-22 of Appellants' invention. Therefore, the rejection is improper and should be overturned.

### III. Conclusion

The invention on appeal is patentable for at least two reasons. First, Kawada in view of Takeuchi fail to teach or suggest storing wafers in a manner that would permit each wafer to have a known orientation that is visible when the storage chamber is uncovered. Second, Kawada in view of Takeuchi fail to teach or suggest a container that conforms to the outer dimension of the wafers of Takeuchi. The remainder of the points set forth in the Examiner's Answer have been previously addressed in Appellant's Appeal Brief. Based on the remarks herein and the remarks set forth in Appellant's Appeal Brief, the Board is respectfully requested to reverse the Final Rejection of Claims 15–22.

Respectfully submitted,



Isabelle R. McAndrews  
Attorney for Appellants  
Registration No. 34,998